

REMARKS

In the Official Action mailed on **26 February 2007**, the Examiner reviewed claims 1-35. Claims 1-35 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter. Claims 1-35 were rejected under 35 U.S.C. § 102(b) as being clearly anticipated by Cobb (WO 00/67074 hereinafter “Cobb”).

Claim Interpretation

For claims 1, 11, 21, 31, and 32, Examiner asserted that the statement “...so that a simulated layout of a solution for the target cell matches a desired layout for the target cell” carried no patentable weight.

Applicant observes that the preamble is generally not limiting when the claim body describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention (see MPEP § 2111.02(II)). Hence, because the claim body describes a structurally complete invention, Applicant has deleted the statement. No new matter has been added.

Rejections under 35 U.S.C. § 112

Examiner rejected claims 1-35 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention. More specifically, Examiner noted that the claims recite the term “similar,” which is vague and indefinite. Furthermore, Examiner avers that the specification mentions several definitions of the term similar, which reinforces the indefiniteness of the term.

Applicant respectfully points out that the acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification (see MPEP § 2173.05(b)). Generally,

the word “similar” means that two entities possess one or more qualities in common. In the specification of the instant application, there are three cases which we describe where two layouts have one or more qualities in common:

- (1) the layout of the target cell **matches the layout of the preceding cell, including the surrounding environment** (see page 7, lines 7-23 and page 14, lines 9-11);
- (2) the layout of the target cell **matches the layout of the preceding cell, but the surrounding environment differs** (see page 5, lines 4-7 and page 12, lines 10-13); and
- (3) the layout of the target cell **differs from the layout of the preceding cell by less than a pre-specified amount** (see page 5, lines 14-19 and page 12, lines 14-16).

Applicant agrees that “similar” is a word that can be indefinite (e.g., see MPEP 2173.05(b)(C)). However, Applicant avers that the repeated and detailed nature of the description of what is considered similar in the specification makes it clear what the Applicant intends to claim.

Hence, applicant avers that one of ordinary skill in the art would understand what is claimed in claims 1-35 and respectfully requests the withdrawal of the rejection under 35 U.S.C. § 112.

Rejections under 35 U.S.C. § 102(b)

Examiner rejected claims 1-35 under 35 U.S.C. § 102(b) as being clearly anticipated by Cobb. Applicant respectfully points out that Cobb is fundamentally distinct from embodiments of the present invention because the Cobb system is limited to either (1) re-using an already-calculated solution for a layout or (2) recalculating the entire layout. More specifically, Applicant respectfully points out that Cobb does not disclose “using the previously calculated solution for the preceding cell as an initial input to the iterative process for the target cell.”

In the system disclosed by Cobb, the system has exactly two options for determining the optical proximity corrections (OPC) for a “windowed area.” These two options are clearly illustrated in FIG. 5. From element 506 (which is labeled “eq to a previously corrected windowed area”), the only two options are:

1. “reuse previously determined corrections” (element 508) or
2. “iteratively simulate to determine corrections” (element 510).

In other words, if the layout of the “windowed area” is determined to be equivalent, the Cobb system literally reuses the determined OPC for a first area on a second area (see Cobb claim 1, page 4, par. 3, lines 6-8, page 8, par. 2, lines 1-4, etc.). Otherwise, the simulator, in conjunction with the correction post-processor, iteratively determines a completely new set of OPC to be made (see Cobb, page 8, par. 3, lines 1-4, page 5, par. 1, lines 6-14, etc.).

Nowhere does Cobb disclose performing calculations of any sort on the reused OPC from the first area. Hence, the system disclosed by Cobb suffers from at least one of the problems that embodiments of the present invention are intended to solve. That is, in the system taught by Cobb, any imperfect or sub-optimal OPC, and/or outright errors in the original OPC are propagated to each “equivalent” “windowed area” in the design.

In contrast, in embodiments of the present invention the system feeds both the desired layout (i.e., the uncorrected layout) and a proposed solution for a target cell into the simulation unit (see page 10, lines 22-24 of the instant application). The proposed solution can be either the uncorrected layout or a prior solution (see page 12, lines 10-19 of the instant application). The system then simulates a solution for the target cell. During this process, the system can correct the solution to compensate for differences between the proposed solution and the desired cell layout (see page 11, lines 14-16 of the instant application). (Note that by using the proposed solution, the iterative process can be significantly shorter than can be required for a new layout.)

Embodiments of the present invention **do not simply reuse a previously calculated solution for the OPC for a target cell**. This allows these embodiments to correct previous simulation results in the proposed solution that were proposed during the first simulation (see page 11, lines 21-23 of the instant application).

Applicant respectfully points out that Cobb does not disclose performing calculations of any sort on the reused OPC from the first area. The Cobb system is limited to either (1) re-using an already-calculated solution for a layout or (2) recalculating the entire layout.

Accordingly, Applicant has amended independent claims 1, 11, 21, and 31 to clarify that in embodiments of the present invention the iterative process is performed on either the layout of the target cell or the previously calculated solution. These amendments find support on page 10-11 of the instant application. No new matter has been added.

Hence, Applicant respectfully submits that independent claims 1, 11, 21, 31, and 32 as presently amended, and original claim 33 are in condition for allowance. Applicant also submits that claims 2-10, which depend upon claim 1; claims 12-20, which depend upon claim 11; claims 22-30, which depend upon claim 21, and claims 34-35, which depend upon claim 33, are for the same reasons in condition for allowance and for reasons of the unique combinations recited in such claims

CONCLUSION

It is submitted that the present application is presently in form for allowance. Such action is respectfully requested.

Respectfully submitted,

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